Improving Exposure Data Inputs Needed to Assess Environmental Risks of Older Adults

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A goal of the US EPA's Aging Initiative is the development of a comprehensive and coordinated approach toward addressing the environmental health concerns and risks that may confront the nation's rapidly expanding population of older adults. This initiative was motivated by the realization that adults may become more vulnerable to environmental hazards with progressing age. To address health issues, EPA's Office of Research and Development (ORD) has proposed to apply the environmental public health paradigm to better understand the relationships between external pollution sources, human exposures, internal doses, early biological effects, and adverse health effects for older adults. In addition to considering the health effects of exposures on healthy older adults, EPA will use information about aging-related changes in activity, exposure, and pharmacokinetic and pharmacodynamic factors to identify particularly vulnerable subgroups within this diverse population.

Work in the National Exposure Research Laboratory is directed toward characterizing what is known about activity, exposure, and dose for environmental stressors at different life stages in the aging population and to identify key data gaps. Specific research objectives include (1) identifying important chemical and biological stressors in the older adult population, (2) compiling extant information on exposures to these agents, (3) compiling activity pattern and physiological information for older Americans, (4) identifying relevant subgroups of the aging population with regard to exposures and susceptibilities to environmental stressors, and (5) incorporating changes in physiological parameters that result from aging in physiologically based pharmacokinetic models.

Research on older adults' exposures and activities and their subsequent pharmacokinetic responses will reduce uncertainties in risk assessment through understanding and elucidating the fundamental determinants of exposure and dose. The information will be used by risk assessors and risk managers who need to incorporate the differential susceptibility of this heterogeneous group into decisions affecting risk and public health.

Notice: *Although this work was reviewed by EPA and approved for publication, it may not necessarily reflect official Agency policy.*

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